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TO
MEDICAL EDUCATION.

WITHINGTON.

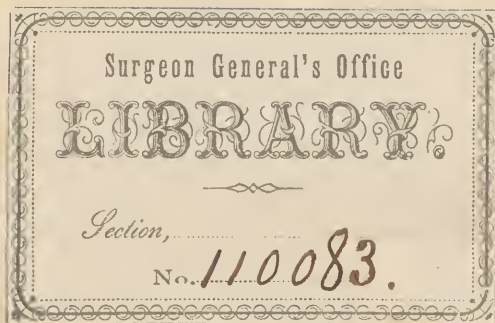
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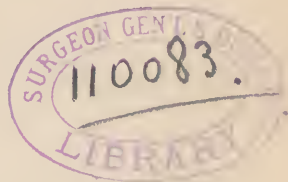
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THE
RELATION OF HOSPITALS TO
MEDICAL EDUCATION.

BY
CHARLES FRANCIS WITHINGTON, M.D.

"And gladly wolde he lerne and gladly teche."



BOSTON
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At the Annual Meeting for 1886, of the Boylston Medical Committee, appointed by the President and Fellows of Harvard University, it was voted that a prize of Two Hundred Dollars be awarded to CHARLES F. WITHINGTON, M.D., of Boston, Massachusetts, for a dissertation on "The Relation of Hospitals to Medical Education."

By an order adopted in 1826, the Secretary was directed to publish annually the following votes:—

1st. That the Board do not consider themselves as approving the doctrines contained in any of the dissertations to which premiums may be adjudged.

2d. That in case of publication of a successful dissertation, the author be considered as bound to print the above vote in connection therewith.

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INTRODUCTION.

It is a frequent experience in the history of public trusts that lapse of time and change of circumstances make necessary for the administration of those trusts, in the fullest requirements of their spirit, extensions and modifications of method which were not contemplated in the provisions for their foundation, and whose possibility, even, never occurred to their founders. The necessity for such changes in administrative policy is recognized by every court of law. Indeed, there are few endowed institutions, at once of long standing and of active usefulness, which are carried on precisely as their originators supposed they would be. Possibly, it is to be hoped, probably, these founders, were they now upon the stage of action and possessed of all the facts in the case, would, in the exercise of the same judgment and generosity which characterized their lives, endorse and approve the action made necessary by changed conditions. There is, then, incumbent upon all intelligent and conscientious administrators of endowed institutions a strong moral obligation to adapt their policy not solely to the specific end nominated in the trust, but to every allied interest which a far-sighted mind can see to be capable of furthering that end.

The primary intention of the founders of the world's great hospitals, from the middle ages down to modern times, has been the relief during times of sickness of those who are unable properly to provide for themselves. It may be admitted that even at the present day this is the motive which calls forth by far the greater part of the contributions made for hospital purposes. Yet to the men who are charged with the expenditure of hospital funds, alike whether those funds are derived from a monastic foundation of the middle ages or are the contributions of a "Hospital Sunday" in the present year, there is an obligation to favor whatever policy will directly or indirectly increase the efficiency of the institution for the relief of the sick poor. Nay more, in

as much as the hospital is designed not for the welfare of one generation alone but of many, and as any useful discovery made in one such institution is at once available for all its fellows, no management has a right to limit its endeavors strictly to the patients who for the time being are under its own roof. The sick poor, to whom its mission is, are the sick poor of every country and of all time.

The reason that the present inmates of St. Thomas' and St. Bartholomew's hospitals are more benefited than their predecessors in the same institutions, under monkish supervision, is simply that medical science has in these intervening centuries made discoveries, the best, indeed, the whole of which are to-day enjoyed by every hospital patient the world over. The surgical achievements which have brought relief to so many sufferers in the hospitals during the last decade have been made possible by such events as the induction of anæsthesia by ether in the amphitheatre of the Massachusetts General Hospital, and the study and practice of asepsis in the hospitals of Glasgow and of Vienna. Is it not then obvious that the welfare of hospital patients in future time, nearer or more remote, depends in the highest degree upon the contributions which can be made to medical science? And is it not clear that every hospital has a relation through interest as well as through duty with the cause of medical education?

At this point the objection may be raised by the lay supporters of hospitals that while the advancement of medical education is doubtless for the advantage of all men, including hospital beneficiaries, yet that there is no special obligation resting upon hospitals more than upon the general medical profession to contribute to such advancement, and secondly that to a certain extent the use of a hospital for purposes of medical education is in conflict with the comfort and well-being of the individuals under treatment; in other words, that hospital managers will prejudice the interest of their present patients by allowing them to be used for the purpose of advancing medical science, however useful such augmented medical science may be for future sufferers. To these two objections it will be our first duty to reply, and we will take them up in the order indicated.

I.

THE PECULIAR OBLIGATION OF HOSPITALS IN REGARD TO MEDICAL EDUCATION.

It is a generally admitted ethical principle that responsibility is proportioned to opportunity. If, then, it can be shown that hospitals possess certain facilities for the advancement of medical science that are not enjoyed elsewhere, and if those facilities have relation to important elements in medical education, it will follow that hospitals are under a peculiar obligation to second this work.

1. THE POSSESSION OF CLINICAL MATERIAL is a practical monopoly in the hands of hospitals and dispensaries. It needs no argument to show that for the medical education of the individual clinical instruction is a *sine qua non*. The didactic instruction of the schools might very well be replaced by the private use of text-books, but the practical study of and familiarity with disease as it exists in the sick-bed, can be replaced by nothing. But the hope of future progress in the science of medicine rests upon the information gained and the acuteness developed by individual students and practitioners. Therefore medical science, with all its possibilities for the relief of the sick, rests upon clinical study as its corner stone.

In former days the great majority of students in medicine derived what clinical opportunities they possessed from accompanying the practitioners with whom they studied in their daily rounds. In simple communities and wherever the personal influence of the family physician was great, a certain portion of patients would consent to receive one such person as the attendant might choose to bring, though it is perhaps doubtful whether, had methods of physical examination been as extended and thorough then as now, even this privilege would have been

granted. It would be very difficult at the present day to obtain the consent of well-to-do persons, who pay for their medical attendance, to allow themselves to be used for purposes of clinical instruction, and even if those practitioners who are competent to teach, could each take one student with him in his daily rounds, the amount of material thus available when distributed among all the students would give each but a small number of cases, covering but a narrow range of subjects.

On the other hand, the hospitals, both general and special, have the material, in large amount, and brought together so that no time is lost in passing from one case to the next. The student who has the freedom of a moderately large hospital will see more important cases than he could if he were able to follow the practice of twenty average physicians. For the ordinary practitioner has much of his time taken up daily with cases of minor illness varying from slight indisposition to imaginary maladies, few of which find their way into the hospitals. Besides the ordinary and average cases of disease, with which the student cannot be made too familiar, many extraordinary and rare maladies are to be found in hospitals, being attracted either by the unusual facilities for treatment or for the sake of a more perfect diagnosis.

Assuming, then, the existence of a large and varied amount of clinical material in a hospital, we now come to consider the *right* to use this for purposes of instruction. When a patient is paying the cost of his treatment either in his own home or in a private room of a hospital, we concede his right to say whether or no his malady shall be made the occasion of instruction to others. From free patients, however, we claim that the hospital management, which, be it always remembered, should act not in the interest of the hospital alone, but of the public, and not only of that portion of the public which for the time being is in its wards, but of the larger public which in the future shall come under its benefaction, has a right to require such a *quid pro quo* as can be rendered without detriment to the patients. This principle, as applied to the pecuniary liability of patients, according to their ability, is recognized and

enforced in many of our large "free" hospitals, and the man who has money enough to pay a half or a quarter of the expense of maintenance is required to pay it *in the interest* of future beneficiaries for whom the hospital can thereby do so much more. If this be legitimate, it is equally so to require *in the same interest* from all free patients, in consideration of the benefits they are receiving, such compensation as they have it in their power to make, to wit., the opportunity for clinical instruction. The only limitation to this requirement is the important one to be alluded to later, that the facilities for instruction which are employed shall not be prejudicial to the recovery or other welfare of the individuals.

Nor does this requirement, with the proviso last referred to, work any hardship to hospital patients as a class. To those who are reasonable, it seems a small price to pay for the advantages they enjoy. Like other small requirements, taxes, for instance, it might be irksome if there were a consciousness that it was unjustly imposed, but to those who accept its rightfulness, it is not onerous. The experience of the writer is that it is rare for hospital patients to object to being used in this way as a means of instruction. Indeed not a few of them appear to enjoy the attention which they thus attract.

The considerations above advanced have reference chiefly to the education of medical students, an end of importance for the future of medical science, but, perhaps, less immediately and strictly so than some of those now to be mentioned.

2. VARIOUS APPLIANCES more or less unattainable, except for hospitals, are peculiarly useful for observing and collating facts of scientific value. Foremost among these we may mention those found in the *autopsy room*. The value of post-mortem studies does not need argument in such a paper as this. It may be said, however, that pathological investigations, in order to be of the most practical use, require to be closely associated with clinical studies. Every practitioner, however he may desire to examine macroscopically and microscopically those diseased organs whose depraved functions

have required his attention at the bed-side, realizes the practical difficulties in the way of making a satisfactory autopsy in a private house. Much of this difficulty, no doubt, is due to his lack of facility, through infrequent practice, in the technique of autopsies and (shall we add?) in the interpretation of post-mortem appearances. Still, there is a great advantage in a well equipped autopsy room. A well-lighted and warmed room, a table of convenient height, abundance of running water (with no sense of anxiety for carpets, sheets and mattresses), balances for weighing the organs, and dishes for containing them, a microscope table at hand, with, of course, a complete set of post-mortem instruments, — all these are to be found in most of our well-appointed hospitals, and cannot be had outside such institutions. With these aids the investigator is much less likely to overlook any important point than without them, and when we add the expert pathologist that most hospitals possess, the chance for useful results from an autopsy are vastly increased.

Abundant surgical appliances are within the reach of most hospitals and their completeness enables surgeons to perform operations which they would hesitate to undertake elsewhere. The manifold details necessary to full Listerism or the aseptic method practiced among the German surgeons could hardly have been carried out without the facilities which a hospital grants. Surgical science has made its most rapid strides in hospitals, and this because of the perfection of appliances and the trained assistants that have made possible the boldest of operations. The raised tiers of seats in the operating room — the amphitheatre — enable an operation to be witnessed in every detail by a hundred pairs of eyes. The patient is none the worse for it, the surgeon is not incommoded, yet, by this simple arrangement, for which a hospital alone gives an opportunity, a hundred men receive instruction from an operation which otherwise would have no educational value except to the surgeon and his immediate assistants.

3. RECORDS OF CASES can be kept in a hospital with a completeness possible nowhere else. The system of house-pupils

or resident physicians, now everywhere in vogue, provides a corps of clinical clerks able under proper supervision to keep a full record of all essential facts in every case of sickness treated. As to what these records should comprise, we shall have some thing to say at the proper place. Suffice it to say here that a continuous series of good records is of inestimable value to one who is studying any form of disease. The frequency with which any one symptom occurs, the time at which it makes its appearance, its relation to age and sex, its prognostic value, — these and countless other facts of importance can be determined only by a comparison of a large number of authentic records, and such records can only be kept in a hospital. In private practice a physician lacks the time for complete records. In a case which promises to be of interest he jots down certain notes, but it is not always possible to tell, at the outset, what are going to be the interesting cases. Moreover, for such purposes as the “collective investigation” of disease the ordinary every day cases are of more importance than rare forms, and here the lack of fulness of most private notes prevents the drawing of deductions even from the range of one’s personal experience, limited as that is. In some few instances the circulars prepared by collective investigation committees in England and this country have suggested a uniform system for recording cases which has enabled the comparatively few practitioners who have had at once the leisure and the ability to comply with it, to collate their own cases with each other and with those of their contemporaries. But, except under some such system, there is little basis for comparative deductions founded on properly recorded observations of individual practitioners.

A species of record which is peculiarly adapted to a well-appointed hospital is the chart of temperature, pulse and respiration. Where there are trained nurses, this record is easily kept by them. The advantage of such a record is seen not only in cases where there is a marked deviation from the norm, but also in cases, like some of the forms of mental disease, where the deviation of temperature is not palpable to the touch, and where nothing but an accurate thermometric record

reveals the state of things. The record may be made if desired oftener than twice daily, and may show, as in cases of insolation, or when the uterus is being irrigated internally in puerperal septicæmia, the relation of the temperature to the therapeutie means employed. In private practice it is not possible to obtain such records, except when a trained nurse is in charge, for the physician's visits are neither frequent nor long enough to enable him to take more of such observations than are necessary for the practical conduct of the case. But the proportion of private patients who are able to afford the service of a trained nurse is not large, and it is among those who are unable to have such attendance that cases are most likely to occur where a stated record of temperature, pulse and respiration would be most useful from a scientific point of view.

Autopsical records, where fulness and accuracy are so important, deserve a word of mention in this connection. The private practitioner when he records an autopsy, is likely to note only such points as seem to have a bearing on the cause of death. Frequently but one, and that the most obvious morbid condition is recorded. But the hospital record, supposing an autopsy to be made, will show all that is seen, whether its bearing upon the cause of death be understood by the observer or not. Cases are not wanting where such complete post-mortem records have waited years, even centuries, for their interpretation.* Even though a condition noted has no relation with the cause of death it may prove of value to some future investigator who shall search the records for some wholly different purpose. For instance, in an autopsy of a case of pneumonia it may be recorded that there were old uterine adhesions. This, and other like notes in other autopsies, may prove of value to a man who is seeking to learn the frequency of pelvic inflam-

* King James I. is said to have died of an ague. The physicians who made the necropsy recorded certain appearances, hypertrophy of the heart and atrophy of the kidneys, which although not understood by their observers, convey to us the probability that the king had Bright's Disease. Similar information has been transmitted unwittingly regarding other noted persons.

mations. Yet such a note would rarely be found outside of hospital records.

4. THE QUALIFICATIONS OF THE HOSPITAL STAFF constitute an element in the educational capacity of the institution without which all the facilities previously mentioned would be of no avail. Fortunately as yet the methods of "practical politics" have had little part in the composition of the visiting staffs of our principal hospitals, and it is true in the main that such positions are held by men who have the ability and the disposition to use the opportunities of their place with a view to the enlargement of the general store of medical knowledge. In not a few instances these men hold chairs of instruction in medical schools and are thus able to utilize their material directly for the teaching of students. Even when not engaged directly in teaching, they are, as a rule, very hospitable in extending the privilege of a visit through the wards to younger men. For the harder work of unravelling obscure cases and for collating the results of their own and others' observations many of them possess a marked aptitude.

Where a body of men is thus working together in harmony much good can come from the opportunity of conference and consultation, which, however useful it may be in private practice, is necessarily a matter of some formality and expense, but which, in the hospital wards, becomes natural and easy. Whenever, as in the larger hospitals, the work is divided among specialists, accuracy of diagnosis is promoted by calling in perhaps several expert opinions upon different organs involved by a common disease. In an obscure nervous affection, for instance, light may be shed by the aurist, the ophthalmologist and the gynæcologist, to the advantage both of diagnosis and of treatment.

5. THE CONTROL OF CONDITIONS is much more perfect in a hospital than in private practice. Not to mention the difficulties that arise in the latter case from lack of proper nursing, injudicious friends may by neglect of instructions imperil the success of the most carefully considered treatment. It is

under strict hospital discipline that the physician can be surest that his orders are being exactly carried out. Again, in private practice, the physician is often obliged to modify the treatment he would prefer in deference to the wishes or prejudices of the friends. Medicines are objected to from their unpalatableness or even from a mere whim. Perhaps oftener medicines are clamored for when the physician considers them unnecessary. When the patient is removed to the hospital it is only he, and no longer his friends, who requires treatment by the physician. If the case be a mild typhoid fever and the attendant believes no drugs to be indicated he can study the natural history of the disease by allowing it to run through its phases uncomplicated even by such placebos as he otherwise might feel obliged to administer. When the patient himself retains his consciousness something may have to be done to satisfy his craving for medication, even in a hospital. But in the absence of a copy of the prescription he never need know the simplicity of the means that are adopted for this end.

II.

THE POSSIBLE CONFLICT BETWEEN THE INTERESTS OF MEDICAL SCIENCE AND THOSE OF THE INDIVIDUAL PATIENT, AND THE LATTER'S INDEFEASIBLE RIGHTS.

While it is true, as has been already said, that in many respects there is an identity of interest between practitioner and patient in the advancement of medical science, and while any gains so made are for the benefit of the whole race, it may nevertheless be admitted that these advantages are not equally distributed among all persons, and that it is occasionally at the expense of the individual that truths of the greatest general utility have been learned. A surgeon's first opera-

tion of ovariectomy, for instance, is not so skilfully performed as his one hundredth, yet through the former he gains a facility in the operation which enhances his subsequent capacity to save life. Yet somebody must be his first patient. So in the development and establishment of any new method of surgical procedure; the later subjects profit from experiences obtained at the expense of the earlier subjects. If it be an injustice that the individual should sometimes suffer for the welfare of the race, it is one that is not confined to the development of medical science, but exists throughout the constitution of things. Everywhere it is true of Nature, in the words of Tennyson,

"So careful of the type she seems
So careless of the single life."

In the matter under consideration it is the clear duty of those who are charged with the administration of charitable trusts to adjudicate between what are at times the conflicting claims of medical science and of individual welfare so that neither interest may receive more than the least possible detriment. In the older countries of Europe especially, where the life and happiness of the so-called lower classes are perhaps held more cheaply than with us, enthusiastic devotees of science are very apt to encroach upon the rights of the individual patient in a manner which cannot be justified. In this country we are less likely to fall into this error than those living under monarchical institutions, but even with us it may be well to draw up, as it were, a Bill of Rights which shall secure patients against any injustice from the votaries of science. The occupants of hospital wards are something more than merely so much clinical material during their lives and so much pathological material after their death.

1. SUBJECTION TO EXPERIMENTS. The first matter to be referred to, namely the extent to which a patient may rightfully be made the subject of experimentation, is one in which it is impossible to draw a definite line. On the one hand, every practitioner must admit that the treatment which he

adopts in every case that comes under his charge is to a certain extent experimental. That is to say, the result of the treatment is a matter of greater or less probability, but never of certainty. Whatever course is decided upon, an alternative has usually presented itself, and in the event, whether favorable or otherwise, the question usually suggests itself, "what would have happened if I had followed the alternative course?" Again, a physician reads a plausible account of a new method of treatment for some disease in which his own previous experience has been unfavorable. He decides that the next case that presents itself shall be treated in accordance with the new method. This is purely an experiment, yet it may be perfectly legitimate, and is equally so whether the patient comes to him in private or in hospital practice. To go a step further: it may devolve upon the physician to test for himself and for the good of science some new and hitherto untried remedy in a certain disease. There is here the puzzling ethical fact that he would be unwilling, were the patient one of his own family, to subject him to the risk of the proposed novelty. Yet if what is known of the physiological action of the drug makes its employment reasonable, it may be proper for him in the interests of medical science to establish its usefulness or the reverse. This can only be done by making trial of it in appropriate cases. The individuals upon whom that trial chances to fall are then exactly in the position of those alluded to a moment ago, whose lot was cast in the early days of ovariectomy. Like the men who have lived in times of political crisis and turmoil, their environment was their misfortune. Responsibilities were devolved upon them whose discharge was of greater profit to their posterity than to themselves. Hospital patients, then, cannot complain if they have to bear a part in the solution of the medical problems of the day, in so far, at least, as a similar obligation rests upon the sick who are outside of such institutions.

They have, however, a right to immunity from experiments merely *as such*, and outside of therapeutic application. This right is one that is especially liable to violation by enthusiastic

investigators. Its violation may, on the one hand, involve no pain, discomfort or other harm, as when anthropometrical observations are sought, a collection of sphygmographic tracings is desired, or the facts regarding the normal condition of the reflexes are wished for. If the investigator were to ask these things as a favor, few, if any, of the patients would refuse him; and if as a matter of convenience he takes them as a right, no harm is done. On the other hand, however, there are experiments, pure and simple, which do involve harm and pain to their subjects. Within a year or two, two prominent English therapeutists who were studying the action of nitrite of sodium, administered the drug to a large number of hospital patients in doses designed to show its physiological action. The vaso-motor symptoms produced were uncomfortable and in some cases, to the subjects at least, alarming. To perfect the demonstration the administrations were repeated again and again in the same and in new subjects. The whole affair was an egregious usurpation. There was no pretense that the drug was given for any therapeutic purpose. If the experimenters wished to investigate the physiological action of the drug they should have called for volunteers; they had no right to make any man the unwilling victim of such an experiment.

A temptation kindred to the above is the recommendation of hopeless surgical operations. When the patient demands such an operation the surgeon should set the chances fairly before him and if it is still insisted upon, he is then justified in undertaking an operation which gives but small chances of success. But he has no right to take advantage of the patient's extremity to *recommend* a procedure which can have no other advantage than to enhance the operator's reputation for boldness.

2. OVERFREQUENT PHYSICAL EXAMINATIONS sometimes work an injustice to hospital patients. It is in acute diseases that they are especially likely to be made. In a pneumonia, for instance, there is great interest in following the various stages in the evolution of the disease. The area of consolida-

tion and the character of the râles undergo such marked changes in a few hours that repeated and prolonged physical examinations of the chest are sometimes made, when nothing can be added thereby either to the diagnosis or to the indications for treatment. The development of the crepitant and subcrepitant râle and of the *crepitans redux* is particularly interesting to demonstrate to students, yet the frequent uncovering of the chest and the exhaustion incident to being auscultated and percussed by a class of students cannot fail to be prejudicial to the patient. Physicians would defend their private patients against such injurious influences; they should be equally solicitous for hospital patients. It is not rarely that we see an expression of weariness come over the face of the patient who is in the hands of the too ardent and precise diagnostician. Its occurrence should always be the signal for a prompt suspension of the exploration. "Do not probe the wound too curiously" is a maxim which should never be forgotten either in surgery or in medicine.

Sufferers from more chronic maladies, on the other hand, can generally support examinations frequent enough for precision of diagnosis as well as for clinical demonstration. When the exact amount of a pleuritic effusion or the precise size of a hypertrophied heart can be learned without compromising the patient's safety, it is our duty to learn them, for then there is no conflict between the interests of science and of the individual.

The utilization of the opportunity for physical examination of patients to secure facility in the manipulation of various instruments of diagnosis, provided the operation be not itself dangerous and the physician exercises careful oversight that it does not become injurious through the maladroitness of the operator, is not an injustice to the patient. But the writer confesses to a sentiment of indignation upon seeing a class of students invited each to pass a uterine sound upon the occupant of a gynæcological table.

3. PROTECTION FROM EXPOSURE is a right of every

female hospital patient, which deserves special emphasis. Lowness in the social or even in the moral scale is no excuse for a disregard of what are or should be the patient's sentiments of modesty. Formal gynæcological examinations, which might be expected to be the severest ordeal to womanly delicacy, have been so guarded in the practice of the most eminent practitioners of this specialty, by the preparation of the patient through the attention of the female nurse, as to occasion really almost no exposure. These precautions ought always to be, as in most cases they already are, enforced. It is perhaps in the examinations, other than gynæcological, that carelessness in this regard is oftenest met. Thoracic and abdominal inspection should not be practiced in cases of young women or indeed of women of any age without the attendance of a female nurse whose duty it should be to arrange the clothing so as to leave the portion desired to be examined accessible to the physician, and to cover and protect such portions of the body as have already been sufficiently examined. Cases are not uncommon in which it comes to the knowledge of the physician that the greatest objection entertained by women to a hospital is the unnecessary exposure to which they have been subjected. The exposure is doubtless due merely to carelessness on the part of the physician, but it is a carelessness which in private practice would lose him his patient, and against which gentlemanliness should be as efficient a preventive as pecuniary interest could be. In the venereal wards of the Vienna Hospital the entrance of the professor and his students is the signal for the turning down of the coverlets of all the beds and the exposure of the entire bodies of the patients to the view of each other as well as to that of the students. Such wholesale exposure would probably be tolerated nowhere in our own country, but some men coming home fresh from the usages of continental cities show too much of the influence of their recent associations. Of course a venereal patient must expect examination of the seat of his malady and even the use of his case for clinical instruction or any other proper means of scientific advancement. But he has not forfeited his right to a decent privacy,

and would have a just cause for complaint if his naked body were made a gazing stock to nurse and fellow-patients.

Now the essential injury involved in an exposure, or violation of privacy, depends entirely upon a revelation of personal identity. When the personality is hidden there is no shame on exposure. A nude figure in an art gallery would bring no sense of shame to its subject provided his identity were concealed. So a photograph to illustrate a pathological condition of any portion of the body is no great injury to one's modesty provided the face is hidden so that the personal identity is concealed. In all gynæcological examinations and operations which are used for clinical instruction the face of the subject should be covered. The personality being hidden, the sense of exposure is lost.

Again, there is no violation of modesty when there is no consciousness of exposure. An operation may be performed upon a woman before a whole amphitheatre of students and provided she is unconscious at the time of her surroundings and never learns subsequently of the circumstances, there has been no violation of her modesty. The operating room of a hospital should therefore be absolutely a *terra incognita* to every patient. None should ever be permitted to see its interior. Etherization should be performed in another room, the patient should be taken to the operating room only when unconscious (the face being, if practicable, concealed so as to avoid the possibility of subsequent recognition by any spectator) and should be removed again at once after the operation to a receiving room. If this be done in all cases the hospital public will be ignorant of the nature of the operating room and patients may be kept forever oblivious of the fact that spectators were present at the time of the operation. In the absence of this knowledge no person can complain of any injury to modesty. There has been so such injury.

4. PARTURIENT WOMEN have a claim in addition to that last referred to, a right none the less imperative because the women themselves are in most cases ignorant of it. We refer

to protection against the transfer of contagion, of which the danger is somewhat enhanced by the use of the cases for purposes of clinical instruction unless special precautions be taken. In this matter the hospitals of Germany are more advanced than many of our own. A general hospital has no right to receive puerperal cases into its miscellaneous, surgical, or even medical wards. Where no isolated or special lying-in ward is provided it is an act of humanity in all but most extreme cases of destitution or emergency to refuse admission to puerperal cases. This seems a hardship to many women who think that shelter is all that they require, and the urgency of their application sometimes doubtless influences zealous teachers to avail themselves of the opportunity this affords for scientific observation or instruction.

Given a suitable ward for such cases, no student or practitioner, who comes directly from the autopsy or dissecting room, or from immediate attendance upon any surgical case where suppuration is present, or upon puerperal fever, should be allowed to make a digital examination of the parturient women. Persons in attendance upon scarlet fever or diphtheria should also be excluded unless they have made a complete change of clothing and taken an antiseptic bath. Others may be allowed to make digital examinations in order to study the course of the labor and to acquire facility in diagnosing fetal positions, but in every case a thorough ablution in some disinfectant solution and an abundant use of the nail brush should be required prior to such examinations. With these precautions "touch courses" are conducted in many of the large lying-in hospitals of Europe and in some in our own country without prejudice to the safety of the patients. Without them, such courses entail the utmost risk to all who are made their subjects.

5. POST-MORTEM EXAMINATIONS should never be insisted upon against the expressed wish of the subject during life or of his nearest friends after his death, unless, indeed, the latter opposition is countervailed by an express permission

obtained in writing from the subject himself. In many states and countries this protection is secured by law, but in all cases justice requires it. One great dread in the minds of a portion of the public in entering a hospital is that of being dissected should they die. However we may regard this as a sign of mental weakness, we have no moral right to disregard it. It is well known that considerations of sentiment have more effect with the majority of persons than considerations of philosophy. Each man's strongest desires and fears are of great moment to himself, however trivial they may appear to others. The usage of the best administered hospitals enables the reply to be made to any anxious patient who may ask the question, that no autopsy is ever made except on a written permission of the patient himself or of his nearest relations.

Nor does this rule work the injury to science that might at first appear. When properly approached and assured that no visible disfigurement of their friends' remains will be made, a very large number of people even in the most ignorant classes accede to such a request. The fact that they are consulted propitiates them and inclines them to grant that when asked as a favor which would excite their bitterest resentment if taken as if a right. Of course it will occasionally happen that an autopsy will be refused in just the case where it was most earnestly desired. But if our tables of recorded cases with autopsies are less complete than those of German observers, it is better that it should be so than that any one in receipt of hospital charity should be subjected to what is, from his point of view, a great wrong.

III.

FACTORS INCREASING THE EDUCATIONAL VALUE OF HOSPITALS.

Having thus far considered the obligation of hospitals to the furtherance of medical education and the safeguards which

should be observed in order that the fulfillment of this obligation may not conflict with the interest of the individual patient, we now turn to a discussion of those means whereby medical education, through the instrumentality of hospitals, can be most effectively aided. With a consideration of these points the remainder of this paper will be occupied.

1. THE USE OF HOSPITALS FOR THE CLINICAL INSTRUCTION OF STUDENTS.

There are two functions of the university, both of which are sought to be filled by most of our institutions of higher education, whether liberal or professional. But as we shall presently show, while both are of importance, they are very unequal in the demand which they make either upon the time or the endeavor of teachers and taught. Moreover it is not necessary that these functions should be united in every educational institution. The older and more fully equipped universities provide a corps of professors consisting often of men who have attained great eminence in their special lines of study, whose duty it is to impart instruction, to give direction to the student's line of investigation, and finally to determine by suitable examinations his fitness to receive a diploma indicating either his general intellectual attainments or his fitness for the practice of some particular profession. In proportion as the students have attained intellectual maturity the amount of actual instruction given them often grows less and less, till their university residence simply amounts to such an environment either of libraries or of laboratories as makes it easy for them to carry on in whatever way they may prefer whatever researches they wish. Now it is a frequent experience that men who have made for themselves a distinguished reputation in science or literature are by no means the most successful teachers of the subject which they themselves have so fully mastered. Many a student learns more from the adjunct professors, the instructors and the tutors in our colleges, men who are nearer his own age and can better appreciate his peculiar difficulties, than from

the professors, despite the possibly greater attainments of the latter. So in the department of medicine the clinical assistants and the *privat Docenten* are often in a position to give instruction which has a greater practical value than that of celebrated incumbents of the professional chairs.

The "teaching universities" are then the ones which have the widest field. Every young man must spend years in order to acquire the rudiments of his profession and he may find it convenient and useful to pursue his studies in many places and under many teachers. He must for a certain time, for the sake of obtaining an approval and certificate of his methods of study and his degree of profit thereby, connect himself with some institution which in addition to teaching functions has authority to examine candidates and issue diplomas. But before, and indeed after that time he may avail himself of extra-mural teaching as well as intra-mural. There is no reason why "free trade" should not obtain in the matter of teaching as well as in the distribution of other valuable commodities. Let any one, we say, who has the opportunity and the ability for imparting instruction, do so. The quality of the wares which he brings to market should be the only factor in his success. Men know as a rule what they want, and will not spend much time or money upon teachers that have not something valuable to offer.

It is this principle which has led to the formation and successful career of the several polyclinics and post-graduate schools which have recently grown up in the large cities of our country. These institutions are but simply organized associations of private teachers of medicine. The members of the associations are men who possess from hospital or dispensary positions clinical material which they believe themselves able to utilize to the benefit of students and practitioners of medicine. If they are mistaken in their estimate of their ability their course will not flourish long, even should their association with other successful teachers give them pupils for a time. A polyclinic is to medical teachers merely what a broker's board or a stock exchange is to its members, a means of better enabling each man to find customers for what he has to dispose of.

For such private medical instruction, whether given by single individuals or by men united for convenience into polyclinic associations, all hospitals, whether large or small, are adapted.

Many of the older and more prominent hospitals are connected more or less intimately with some medical school, and of course for every such school it is of great importance that a hospital be available to its students. But there is need of many more hospitals in the community than of diploma-granting medical schools. Of the former there are far too few and of the latter already far too many.* The mistake has been made too often of thinking that every new hospital which is built must have connected with it a school of medicine, authorized to issue diplomas. In many cases it has happened that the quality of instruction offered has not been sufficiently attractive to secure students unless the additional bait were presented of a diploma in medicine. Hence the lamentably low value of so many medical diplomas. If a proper limit were set by our state legislatures to the number of institutions chartered to issue diplomas, the value of these certificates would be increased, and at the same time the quality of the instruction offered by the attending staff of the various hospitals, no longer able to give diplomas and hence depending for their success as teachers upon the value of the commodity offered, would be improved. There are indeed some manifest advantages in separating the diploma-granting from the teaching function, even as regards the university itself. This question, however, lies outside our present subject.

In the old-time custom of a practitioner taking a student into his office and to ride about with him, there were certain advantages which were lost in the era of medical schools which was brought in by advances in the *science* of medicine. As has been shown in the earlier portion of this paper, the former method of instruction in its details is no longer feasible. But

*The number of colleges authorized to grant diplomas in medicine, in the United States and Canada, was for the year 1885, according to the report of the Illinois State Board of Health, one hundred and twenty-eight.

its great benefits to the student, derived from personal association with a master's mind, and observation of the manner in which that single mind attacks the various problems of a general practitioner's work,—these benefits may all be retained, with the added advantages of an increased range of clinical subjects, by any student who can place himself under the tuition of a good hospital physician. Into a well-rounded medical education many other elements must enter, laboratory work, didactic instruction on the theory of Physic, familiarity with different views on the controverted points of pathology and treatment, but for a certain portion of his professional curriculum a young man can hardly do better than to bring himself in contact with a medical personality and study individual methods, in the treatment of disease. For this purpose no field can be so fruitful as a hospital ward under the direction of a man who is wise in action and clear in explanation.

2. RESIDENT PHYSICIANS OR HOUSE STUDENTS.

There has been a very commendable disposition on the part of the large hospitals of late years to increase the number of their resident house officers. In the Pennsylvania Hospital, for example, forty to fifty years ago there were but two resident physicians, who served for two years, and each alternately took charge for six months of about two hundred insane cases, the male and female medical wards, the obstetrical wards, where each case of labor was attended in turn by each resident; and the male and female surgical wards, where there were frequently eighty beds to be dressed each day. In other large hospitals there was a similar inadequacy in the number of the resident staff. The increase which has been made in late years has benefited not only the large number of young men who have been educated to the study and care of disease, but has enabled the work to be done more thoroughly and has thereby conduced to the comfort and welfare of patients and the popularity of the hospital. At present the large hospitals of this country are tolerably well supplied with resident physicians,

but in some cases the smaller ones have not as yet provided for such officers. We believe there is no hospital but would find it profitable from a purely administrative and economical point of view to appoint such an officer at the expense of his board and lodging. In many cases, no doubt, even should the management feel itself unable to offer the consideration of board, a suitable man could be found.

The question suggests itself at this point as to the equity of a hospital's requiring from young men who seek positions a honorarium in consideration of the instruction to be gained by such residence. The desirability of a house-service is so great that many young men are willing to pay roundly for the appointment in some special hospitals. Is it proper, then, for the management to neglect to avail itself of this possible addition to its income? In cases where the institution is suffering from insufficiency of funds to carry on its work, or where the duties are not so onerous as to occupy all the incumbent's time, or again where the opportunities for gaining experience and instruction are especially great and out of proportion to the amount of service required, it seems entirely just that the hospital management should add to its resources in the way indicated.

As to the advantage to the young medical man of a position which enables him to study various cases of disease from constant daily personal observation through their successive phases of development, to make diagnoses under the correction of experienced clinicians, and to learn to respond to calls of emergency, nothing need here be said. Such experiences are simply invaluable. On the other hand, in the economy of time which by intelligent watchfulness he may make for his visitant, in the fulness and carefulness of the records which he keeps of the cases, and in the immediate relief which his attentions may give to suffering patients, he fully compensates the hospital for the slight expense of his maintenance. The laborer is worthy of his hire.

There is every reason in the interest both of the hospital and of the student why these prizes should be awarded strictly on

the basis of professional excellence. No other means, we believe, is on the whole so adequate to the determination of the question of fitness as the competitive examination. While this method may occasionally work an injustice, it is less likely to do so than any other. Appointments by favor of the visiting staff or of the hospital management, by which men of less ability are given precedence over those of more, are at once discouraging to meritorious students and prejudicial to the welfare of the hospital, which receives a poorer quality of service than it might otherwise command. Besides, the class to which it is to look for its future visiting physicians, is not thus composed of the best material attainable.

Wherever practicable, the special character of the house officer's service should be elective, — priority of choice being given on the basis of excellence in the competitive examination. In this way each man is more likely to secure the kind of service in which he is especially interested, where he will be likely both to give and to receive the greatest possible amount of benefit. In the general hospitals, which are sought presumably by men who intend to engage in general practice, it is desirable that there should be alternation of service, which while giving a preponderance to a particular branch, will yet afford some experience in others. Thus men may be eight months in surgical wards and four in medical, or *vice versa*, or a man who elects to be a surgical interne may be required in hospitals where there is an out-patient department, to serve a period as medical externe.

In the interest of patient, hospital and house officer alike, it is desirable that too much responsibility be not placed upon the latter. The proper conception of his function is the carrying out in detail of a line of treatment of which the general policy is laid out by his visitant. In this manner the dread of the patient (not always ill founded) of inexperienced and youthful practitioners is removed. But above all, it is of incalculably greater advantage to the house officer to study the operations of maturer judgments than to flounder about in the empiricism of his own immaturity. During the latter part of his service,

however, his responsibilities may be increased, following the discretion of the visitant, but the latter, who still retains the actual responsibility for the management of his patients, should always carefully revise any work that may have been done in his absence, and make any criticism that may be called for. In the surgical wards the visitant, if able to spare the necessary time, may permit his house physician, late in the latter's service, to perform certain operations, always under his own direction or supervision. Thus if any emergency arises, the more youthful operator will possess the moral if not the manual support of a senior, and the patient will receive no detriment.

The term of a house physician's tenure should not as a rule exceed eighteen months as a maximum. First, because the fatigue resulting from any longer service will prevent his receiving much advantage from it or his really discharging his full duties to the hospital; and secondly because a longer incumbency will encroach upon the rights of other men who should share in the privileges of such positions.

3. TRAINING SCHOOLS FOR NURSES.

The last two points considered have had reference to the preparation of young medical men, through the educational influences of hospitals, for the practice of their profession. But, as we shall see, this function, important as it is, by no means exhausts the educational capacity of the hospital. The most useful handmaid of medicine is nursing. In many cases, notably in the acute fevers, the labor of the nurse is undoubtedly more important than that of the physician. For the reduction of medicine from a science to an art good nursing is absolutely indispensable. For the education of a class of persons fit to carry on this important work, hospitals offer peculiar advantages. Prior to the year 1860 when Florence Nightingale established at St. Thomas' Hospital, London, the first training school for nurses, there had been no instrumentality outside of certain religious orders for systematic

and thorough instruction in nursing. This work, alike in hospitals and in private families, was done by persons usually of a low grade of intelligence, who possessed no farther training for their duties than a certain manual dexterity gained by more or less practice in the care of the sick. In 1873, three training schools were organized nearly simultaneously in this country, one at New Haven, Conn., one at Bellevue Hospital, New York, and a third at the Massachusetts General Hospital, Boston. We have now, perhaps, a score, connected with well-established hospitals in various cities of the United States. It is the general testimony of older hospital physicians, who have had experience of both systems, that the character of the nursing in their wards is vastly better where training schools exist than under the former method. This redounds directly of course to the advantage of the patients both inside and outside of hospitals. In many instances it diminishes the length of residence in a hospital and thereby enables a greater number of persons to be treated in a year. In private practice enormous relief is afforded the practitioner who no longer is obliged to attend personally to pass a catheter, make a hypodermic injection or renew a surgical dressing. Much time thus saved from the drudgery of his profession can be devoted to scientific improvement. Again, various symptoms or other phenomena of disease which might not be evident at the time of the daily visit, are noted and recorded by the intelligent trained nurse in her daily bulletin, and thus are utilized for purposes of diagnosis or as contributions to the knowledge of the natural history of the disease.

There is no reason why every large hospital, and many smaller ones, should not adopt the system which is working so admirably in the institutions which have inaugurated it. Certainly in every town of thirty thousand to forty thousand inhabitants there should be a source of supply of competent educated nurses for the inhabitants and for persons in the adjacent country. To the hospitals themselves this would involve little, if any additional expense. The cost of maintenance of the nurses is increased only as women of higher

social grade require a little more privacy in their domiciliary accommodations than those who are less refined. But on the other hand, as apprentices to a craft, they are willing to work for a less compensation than women who are gaining no instruction. Of course, when a building is provided for the sole use of the student-nurses a considerable outlay is required. But even then the vacating of rooms which would otherwise be taken up by the nurses, increases the accommodations available for the sick,—accommodations which can be made to bring in a direct pecuniary return. The money received from paying patients, who are usually ready to take such rooms, will pay the expense of the nurses' dormitory. In general, there is no question but that an equal outlay of money will secure as good nursing service to a hospital under a training-school system as the same money would purchase in the labor market.

Properly speaking, there is need of a greater number of nurses in the community than of doctors. For a given case of serious illness requires the undivided attention of at least one nursing attendant for a period of time during which the attending physician is able to care for a large number of patients. From motives both of affection and of economy the work of nursing is now done in the majority of cases by the relatives and friends of the patient. But with each succeeding year the former of these motives is becoming less strong in influencing friends to take the personal care of their sick. The sentiment is growing that in grave cases of disease, trained capacity is a more efficient help than untrained affection. The high wages earned by thoroughly trained nurses and the constant call for their services show that in this matter as yet the supply is not equal to the demand.

But the very fact that trained nurses are at present able to command so high a price, is for persons in moderate circumstances a great obstacle to their employment. The women of a household must often attend their sick relatives, or an outsider, at best of the grade of an upper servant and commanding only a corresponding price, must be called in. For such

attendants, premising that they have tact, gentleness and fair judgment, something else is necessary that they may do well for the patients under their charge. That something else, namely, facility in doing easily and quietly certain simple things, such as bathing, changing clothing of the person and of the bed, assisting at the calls of nature, preparing and administering food, drink and medicine, giving injections, making poultices and dressings, moving painful or injured limbs,—these and many other accomplishments are within the capacity of any woman of ordinary intelligence, but they are not innate. They can be properly learned only by seeing them done.

Here is a large and as yet unoccupied field of usefulness for the hospital. In addition to those women who can give the time and study necessary to a full training as professional nurses and who will receive diplomas at the completion of their term of study, why should not the hospital give private instruction to any woman who wishes to learn something of nursing? For the latter there would be no examination and no certificate, simply instruction. On payment of a moderate fee, sufficient to reimburse the management for its extra trouble, mothers who wished to learn to take care of their children in illness, girls whose natural bent inclined them to assist their families in the sick room rather than in the kitchen, “untrained” nurses and domestics of good intelligence whose tastes make the work of the sick room more agreeable than that of the nursery or the laundry, or again young women of the higher walks of life, might enroll their names in small classes of three or four each, not to become “professional nurses” but to receive training in some of the fundamental principles of giving comfort to the sick. On certain days of the week at a fixed hour these women visit a ward, and are placed under the guidance of an intelligent nurse who shall demonstrate the proper mode of performing such duties as have been indicated, and make any necessary explanations in answer to questions. Either the hours of the instruction may be altered from day to day, so as to bring the various branches of work in their natural course under the observation of the

pupils, or the requisite changes may be made in the routine of ward work. If the classes were made as small as two, the pupils could themselves do the work under direction of their instructor. Of course this occupies some of a nurse's time, but the hospital could receive sufficient pecuniary compensation for that, and the impartment of the instruction, which would naturally fall to the lot of the more advanced members of the training school, would have, as such work always does, an excellent effect upon those students themselves. Finally the lay-pupils, as we may call them, might be admitted on payment of a small sum to hear the didactic lectures which are usually provided for the training-school.

We believe that in our large cities there are a considerable number of women who would gladly avail themselves of the opportunity of learning something of the care of the sick, but for whom such knowledge is generally unattainable except through the medium of a hospital.

To return for a few moments to the training-school proper. There are two different systems upon which these institutions are managed. According to the one, a number of persons interested in the establishment of a training-school, organize, obtain a charter and select a superintendent. They then enter into a contract with the management of some hospital, agreeing, on their part, to supply the nursing for some or all of the wards; the hospital, on the other hand, agreeing to furnish as compensation for the work done a money payment, or maintenance of nurses, or both. According to the other method, the hospital management itself, for the sake of securing good nursing for its wards and of supplying the community with well-trained nurses, undertakes the same work, but of course there is no contract between two parties, and the one executive head of the hospital administers also the training school. The former method has the advantage of being applicable where hospital authorities lack either the authority or the disposition to organize and maintain such an institution, but from self-interest are willing to avail themselves of its advantages in an increased efficiency of the nursing force. It

has the disadvantage of substituting two boards for one, with increased chance thereby of friction and disagreement. This method has worked admirably in some instances, when there was a hearty co-operation and close sympathy between the two parties concerned. On the other hand it has produced most disastrous results, as in the quarrel a few years since at Guy's Hospital where there was a conflict between the nursing force and the medical staff. Independent training-school managers may in their zeal for the education of their pupils, make such a distribution of the latter, that the hospital administration shall suffer. The balance of advantage to all interests, therefore, seems to be with the method which makes the training school a department of the hospital and under its administrative control. Then the medical staff at whose immediate disposal this most important instrument lies, can in case of failure or incompetency look, as in all other cases of difficulty, to the one executive head to have the matter righted.

The general similarity in the minutiae of the management of the various training schools in this country and the high degree of success which they are achieving makes extended comment on these methods superfluous. One or two points, however, bearing closely upon their efficiency deserve mention. There is, so far as the writer knows, no training school for the supply of male nurses. Men who serve the public in this capacity have usually picked up their knowledge as orderlies and ward-tenders and without the careful supervision and instruction attainable by the other sex. While for obvious reasons the instruction given in a school for the education of both men and women would much of it have to be duplicated, it seems as if some of the large hospitals were in a position to organize such instruction. The chief obstacle to its success is likely to be lack of men willing to devote the necessary time to the course, on account of the many channels for earning a livelihood open to young men. Still there is no doubt that there is a call for trained male nurses.

A similar work, much needed but long neglected, namely the training of nurses for the insane has, it is a pleasure to

say, very recently been taken up by two hospitals in this country. A school for this purpose, connected with the McLean Asylum, at Somerville, Mass., graduated six women March 1, 1886, and a similar one at the Buffalo State Asylum in New York, graduated seven women April 20th. These are, so far as known, the first schools of the kind. The former is wholly independent of the Massachusetts Training School, which is established in the General Hospital, a co-ordinate branch with the McLean Asylum of one common corporation. The aim in this case has not been to educate nurses who should be "specialists in insanity," but, after giving a thorough training in all those general branches which are essential to the nurse's art, to give the pupils in addition particular instruction in the care of nervous and mental diseases. Such nurses will no doubt be appreciated by that portion of the public which is obliged for longer or shorter times to retain insane relatives in their own homes. It is suggested that where such independent schools are not yet feasible, an arrangement might advantageously be made with general hospitals whereby the latter could for a season send their pupils to such institutions, precisely as they now do in some cases to maternity hospitals.

Into the question of the character and extent of the theoretical instruction that shall be given to nurses during their course of training in hospitals, our subject does not call upon us to enter. That some knowledge of anatomy and physiology is desirable will hardly be denied. As to what constitutes a proper amount there would be much diversity of opinion. The objection sometimes raised against officious nurses that they "know too much," is hardly valid. One cannot have too much knowledge provided it is modestly held and does not lead to usurpation of functions properly belonging to others. On the practical side, a professional nurse should be trained first and thoroughly in the matters already mentioned as among the elementary branches of nursing. In addition to these she should be instructed in the principles of ventilation and hygiene of the sick room; the disinfection of the secreta and excreta of the body, of clothing, furniture etc., and the general

principles of the destruction of spores and micro-organisms; the administration of medicines by mouth, rectum, lungs and skin, and of nutrient and evacuant enemata; the vaginal douche; hot air and hot water baths and wet packs: the immediate treatment of poisoning and other emergencies; the control of hæmorrhage; the treatment of syncope and shock; the observation and record of pulse, temperature and respiration; the administration (under medical supervision) of anæsthetics; the preparation of patients for operations and the after-treatment; the application of surgical dressings; the care of the tracheotomy-tube; the use of the female catheter; massage; the care of the dead. And, finally, the special requirements for the care of various classes of diseases, as fevers, diseases of the skin, of the eye, of the ear, of the nervous system, of the chest; surgical cases, operations and fractures; labor, with the management of obstetric emergencies; the care of the new-born and the management of sick children, including orthopædic cases.

4. THE APPOINTMENT AND TENURE OF HOSPITAL PHYSICIANS.

It is obvious that very much of the usefulness of a hospital both for the present needs of the sick and for the advancement of medical science depends upon the securing of the best professional skill available for its visiting staff. It is a fortunate circumstance that for various reasons a hospital is able to command if it will, the highest professional talent of its vicinity. When anything less than this is secured it is from blundering in the selection, not from the refusal of the best men to serve. When we say the "best men" we do not necessarily mean the most famous. For in medicine as in every other pursuit a man attains his maximum of ability before he reaches his maximum of reputation; the latter being consequent and therefore subsequent to the former. The "best man" for a hospital appointment, may even — especially if he is to begin at the foot of the ladder in an out-patient

service,—be not the one of the highest absolute achievement in the professional community, but he who having most thoroughly performed what he has had to do gives thereby best promise of intelligent and painstaking service during his hospital connection. An inducement, effective no doubt in many cases, to the acceptance of hospital service is a charitable willingness to be of service to humanity. But waiving this, and confining ourselves to the argument from exchange of equivalents, which has weight with all men, we see that at the beginning of one's hospital service the burden of obligation is upon his side. He receives what is most valuable to him, a field of study upon which to employ that leisure that his professional duties still allow him, an opportunity to increase his diagnostic acumen and technical facility in surgical and other operations. He also receives the prestige which naturally and properly attaches to a hospital appointment. In return for these advantages he gives his skill, his presence in many cases whether summoned by day or by night, and much of his time, a commodity less valuable to him than it will subsequently become.

In process of time, the balance of obligation shifts its side. His reputation reaches a point where it confers greater *éclat* upon the hospital than the latter does upon him. His skill is increased: his time has a larger money value. Yet both are given freely as in the beginning. Every large hospital has such men upon its staff,—men who continue in their connection long after they have more than repaid all the personal advantages they have received from it.

How then shall the hospital secure such servants for its immediate, and through their contributions to medical service, for its remote advantage? At the outset we make the obvious but no less important reply that politics and personal favor should have no part whatever in the selection. In municipal hospitals the former factor is most likely to exert an influence, and the latter must be guarded against everywhere. Lay trustees and overseers are entirely incapable of forming a reliable opinion as to the best man for a hospital position. A

wise selection can be made only by professional men. These men should be either the visiting or the consulting staff or a committee of the same appointed as an examining board. The principles of the reformed civil service should guide the selection. No one denies that the methods of examination employed by the army and navy boards secure a most admirable set of men for the medical officers in their respective branches. Why should not the same methods give equally good results in civil hospitals? Civil-service methods might require some modification to adapt them to the case in hand but *a suitable critical examination to determine the fitness of candidates in the theoretical and practical knowledge of their profession* would, in the opinion of the writer, constitute a most admirable basis upon which to rest the succession of decisions which shall lead up to the final selection. Such a criterion would effectually prevent the unfit appointments which occasionally creep into some of our best hospitals. A competitive examination, however, does not reveal all the qualities of the successful physician, and from among the names of those successful in this examination the one or two should be selected who possess in the highest degree the tact, the judgment and the other qualities which give the best promise for the professional future of their possessor. Finally, as so much in the last resort depends upon the personal equation, and as a feeling of mental liking and esteem adds so much to the power of a co-operating body, an alternative choice might be referred to the nominating body from which to select the appointee. The final nomination of the professional staff should receive the formal confirmation of the governing body in almost every conceivable case.

A reform much needed in many of our metropolitan hospitals is an increase in the number of the visiting staff. In many instances the number of physicians is so small that each individual has a term of service so long that it becomes irksome before it is finished, or else that the number of patients to be seen daily is so large as to interfere with their receiving individually as much attention as they should. A service, on

the one hand, should cover not less than three months consecutively, because many of the longer cases cannot otherwise be followed out to their conclusion under the same charge to which they were at first assigned, and frequent changes of the service interfere alike with the interests of the patient and the interest of the physician. But, on the other hand, the demands of hospital service if continued longer than this period are likely to involve such physical and mental fatigue as to impair its value. The evils of too large a number of patients are especially seen in out-patient clinics, where the practitioner having but a few moments for each patient is prone to fall into a perfunctory, routine method of treatment. The reason that out-patient clinics are not more abundantly utilized for collated observations is doubtless their too great numerical size which involves the waste of much material of possible educational value. Of course out-patient clinics present many cases of small professional interest, but the tendency which perhaps exists to slight such services is well guarded against by the habit now so general in hospitals of making such positions stepping-stones to the more responsible and attractive in-door services.

Finally, hospital appointments should be held by none but those who are willing to give attention to the duties. When a man, by reason of age or of private engagements, professional or otherwise, reaches a point where he cannot or will not give the attention necessary for an adequate observation and care of his cases, he should be politely but firmly requested by the hospital management to resign his place. An honorary position upon the consulting staff, or in very exceptional cases an appointment *emeritus* with two or three beds at his disposal, which he may fill with cases of his own if he desires, should content such a person. *Substituting*, except in cases of disability from sickness or other temporary cause, should not be permitted. If a man has not time to make his daily visits, or if he is a habitual absentee for the summer, leaving his place to be filled by another, he has no right to retain his position. Let the one who actually does the work receive the

credit of it, and his work will be much more satisfactory to himself and to all others concerned. In no position is "deadheadism" more out of place than upon a hospital staff.

5. HOSPITAL WORKSHOPS.

In hospitals where orthopædic and general surgical diseases are treated, various appliances are necessary which, in order to meet most fully the requirements for their use, should be designed and made expressly for each individual case. The day has gone by when such apparatus is bought at wholesale for the prospective spinal and hip cases of the year. Two courses are now open to the progressive hospital, one to order from the instrument maker, who comes and makes his measurements in each instance, the best apparatus which he can devise to meet the requirement of the cases—a method which is as unscientific as it would be for the physician to describe symptoms to an apothecary and leave the latter to select an appropriate remedy. The other method is to establish and fit up the *hospital workshop*, with soft and hard woods and carpenters' tools, with iron and steel rods, flat and cylindrical, sheet iron and tin, wire, steel and copper rivets, cold chisels, pliers, shears, files, hammers, vises and anvils; with sole-leather, rubber, gutta-percha and plaster;—in a word, with every material used in making the ordinary forms of surgical apparatus and with the tools necessary for working the same. Here should be one or two workmen who may during a portion of their time perform other labor for the hospital. All apparatus required in the hospital, with the exception of some standard articles like crutches and also perhaps some hernial trusses, should be made in this workshop under the direction of the surgeons, accompanied usually by working drawings. The advantage thus given to a branch of surgical technics, hitherto much neglected, is very great. In many cases the surgeon and house-officers in their efforts at realizing some desideratum for a given case will be materially aided by familiarizing themselves with the use of tools; and such a workshop may become a place of instruction

second in value to no other laboratory in which the student of medicine works. The successful orthopædist must be something of a mechanic, and unless some such shop is provided (which can be done in connection with the hospital where the apparatus is to be used) this part of his training is neglected. Every invention, on the other hand, and every discovery to which he is led, becomes at once, unrestricted by caveat or copyright, the property of his suffering fellow men. What need of further argument for the wisdom of an instrumentality which inures in so great degree to the benefit at once of present and prospective inmates of the hospital?

Yet, valuable as is such a department, it can be established at very small expense. The experiment has actually proved a financial success. It has been tried in the Children's Hospital and in a partial degree in the City Hospital of Boston. It is working admirably in the New York Orthopædic Dispensary, and in the University Hospital of Philadelphia, where a shop in a building erected for the purpose and supplied with steam power, has been established at a cost of about two thousand dollars. Although only the actual cost of production of apparatus is charged to patients, and to those only who are able to pay for it, the shop is now nearly self-sustaining. Meantime apparatus is produced, always after drawings by the surgeons and under their supervision, accurately adapted to each case and developing in the surgeons an inventive skill and a manual dexterity which conveys the highest promise for the future of orthopædics.

6. THERAPEUTIC INVESTIGATIONS.

The question of how far the hospital patient may rightfully be made the subject of experimental therapeutics has been considered above in the chapter upon the rights of patients. It remains in this connection to mention the most useful methods of collecting and comparing the results of drug treatment.

Such results, to be of value, must represent a considerable number of observations, and the observations should, as far as

possible, be made under similar circumstances of diet, temperature, nursing and other collateral factors in treatment. Such similarity of circumstances can best be secured in the wards of a single hospital or of different hospitals in the same locality and having the same policy of management. In some of the occasional conferences that hospital physicians should hold, it may be decided to try the effect in appropriate cases of a certain line of treatment. Some of the many "new remedies" that are constantly being brought to professional notice may be considered worthy a trial, and as the manufacturers publish in their copious "reports" only favorable cases, we must look to hospital tests for an impartial publication of the *cons* as well as the *pros*. It is agreed, for instance, among a number of physicians that they will try the effect for a certain length of time of antipyrin upon all cases of constantly elevated temperature coming within their care, whatever the disease. The doses and times of administration are to be accurately recorded, and thermometric observations are to be made before and at certain agreed intervals after the dose. The amount and the length of the refrigeration are thus determined in a large series of cases. The effects upon the circulatory and respiratory systems are also noted, together with any modification in the subsequent natural history of the disease. Any abnormal effects produced upon the digestive, the urinary, or the cutaneous systems, and any peculiarities in the mental or nervous state are observed. In this way, by the contributions of the different observers, the favorable, the unfavorable, and the negative effects of the drug can be fairly estimated, and conclusions of real value can be drawn.

In like manner the effects of hydrotherapy in the continued fevers, the relative value of the various antiseptics in obstetrical or surgical practice, and many other important questions can be studied. No compulsion, of course, is to be exercised upon any physician to make him an unwilling participant in such experiments. Each man, being responsible to his own judgment and conscience for the treatment of his cases, must decide whether a proposed therapeutic policy has enough

reasonableness and plausibility to make it justifiable, and if he decides against participating in a proposed experiment his results will still afford a basis of comparison with those of his less conservative associates.

7. UNIFORMITY AND COMPLETENESS OF RECORDS.

This subject follows naturally upon the one last considered, for to the comparison of therapeutic or of any other data complete records are essential. Who that has ever had occasion to look through series of notes in the investigation of any class of diseases, has not been annoyed to find the record occasionally, silent on points of the greatest significance? or has not been obliged to search through pages of manuscript for implied information that might have been explicitly given in a word in the proper logical connection of the narrative? The discipline of a hospital makes it possible to secure for long series of years records which shall be nearly uniform in both subject matter and arrangement. It is not necessary for our purpose to add one to the various schedules for case-taking that have been proposed, all more or less logical and complete. The principal thing is that each hospital adopt through an appropriate committee a scheme of records (which may indeed to advantage be uniform with that of other neighboring hospitals) and that that scheme when adopted be rigidly carried out under the special supervision of some person appointed for that purpose. The English plan of having a Registrar has been adopted in one or two instances in this country and seems well adapted to its purpose. Whatever schedule is selected should be based upon substantially the following outline :

The patient's age, sex, color, social condition, nativity, length of residence in the locality, present and previous occupations. Signature (when possible) as an index to intelligence and nervous state. Heredity. Personal habits, in regard to beverages and narcotics. Venereal history. In women, menstrual history, number and character of labors ;

miscarriages and causes therefor. Previous diseases, and general state of health. Present illness, rational symptoms, first in the patient's own words and secondly in answer to questions; the inquiries as to the different organs being made in a prescribed order. Physical examination, in the same order. Temperature, pulse and respiration. The name of the physician should be appended in the margin, as well as that of the recorder. Any subsequent change in the attendant should be noted. A chart of temperature should be kept until discontinued by the physician. Wherever the chart shows any rise of temperature it should be preserved as a portion of the record of the case. The report of the original and of any subsequent physical examination should be accompanied by the name of the examiner. The daily record should be made at the dictation or at least under the supervision of the visiting physician. All operations should be described in full, at the dictation of the operator or of his principal assistant, with particulars as to the duration, the use of the anæsthetic, the material employed for ligatures, the number of deep sutures, the use of antiseptics during the operation, the character of the dressings, and the patient's state after the operation. The name of the operator should always be given.

Photography is susceptible of a much wider application in clinical records than it has yet received. The house physician or perhaps the hospital chemist can by the aid of dry plates without great expense secure graphic representations of many diseased states. Tumors *in situ* and even after removal; deformities, congenital and acquired; joint affections, with the apparatus employed for their treatment, and the appearances after such treatment; the indications for and the results of plastic operations. Medical diseases also, ascites, aneurismal tumors, leucocythæmia, these and many other maladies can be described more briefly and sometimes more completely by the camera than by the pen. Perhaps in nervous diseases an application of the instantaneous method of photography may give as graphic a picture of the knee jerk phenomenon or of a spastic gait, as a common photograph does

of the appearances in muscular atrophy. Photomicrography will also find a very useful field in recording the histological work of the hospital.

8. HOSPITAL REPORTS.

It has long been the custom with most of our municipal and charity hospitals to publish for the information of those who furnish them their means, stated reports upon the administrative side of their work. Aldermen and voters as well as charitable contributors like to know how many patients have been treated during the year, from what diseases they suffered and how many got well. The outlay necessary for printing such a report is therefore considered a legitimate expense of the hospital. Yet such reports have a very transient value. The significant statistics could be easily comprised in a half column of the daily press. On the other hand, an occasional medical report summing up the valuable results of the volumes of the hospital records and bringing their conclusions before the medical world would be of great value. The worthy example in this matter set by such hospitals as Guy's and St. Bartholomew's, the London and St. George's, has never, so far as the writer is aware, been followed to any extent in this country, though the Boston City Hospital has issued at intervals of five or six years three series of medical and surgical reports prepared by the members of the staff. If it is urged against such reports that many of the valuable results of hospital practice are already made public in the form of papers read by individual hospital physicians before the various medical societies, it is to be answered that while such papers contain isolated cases of interest and sometimes generalizations from series of cases occurring in one man's service, they almost never embody the entire hospital data for a series of years; which data are likely to lie buried in the manuscript volumes, until such a publication as a general medical report brings them to the light. That magnificent compilation, the Medical

and Surgical History of the War of the Rebellion, bears the same relation to the work of the army surgeons that the report of which we have been speaking bears to the daily work of the civil hospitals. And if a wise interpretation of the functions of a government department authorized the publication of the former work, an equally wise interpretation of a hospital trust would justify the expense involved in giving a permanent expression and a wide diffusion to knowledge which is to be of value in the treatment of all future hospital patients.

9. A SALARIED PATHOLOGIST.

In the earlier portion of this paper, under the general subject of hospital appliances, reference was made to the facilities for pathological investigation which are now fortunately enjoyed by many of our leading hospitals. Mention was also made of the expert pathologist whose services are so generally called upon to give interpretation to the post-mortem findings.

It remains to add in the present connection as one of the desiderata for the highest educational usefulness of the hospital, the appropriation of a sum of money to pay for such services. The position of a pathologist, unlike that of attendant physician, does not carry with it its own compensation. The person who holds the position is not usually in the line of hospital promotion. So far from its increasing his practice and thereby his income, it is a serious interference with practice not only by reason of the large amount of time which it claims, but because the character of the work makes it unsafe for it to be combined with obstetrical or surgical work. Pathology is a pure science, having no application to bread-winning, except from the precarious chances of a summons as a medico-legal expert, or, in one or two of the states, of appointment as a medical examiner. Unless a man can teach (and medical teaching is not profitable) or has an independent income, he cannot look forward to pathology as a life-work any more than he could to botany or zoology. Yet even in the temporary way in which a young man now is able to devote

himself to this work, he gives a service to the hospital for which he never receives any compensation, and for that expert service there is just as much reason that the hospital should pay, as for the not more valuable service of the chemist who prepares its prescriptions. A payment of a few hundred dollars a year would discharge the indebtedness of the hospital, and in performing that act of common justice, it would secure a longer continuance of those services, growing more valuable each year, than could otherwise be possible. In the larger cities one man might serve as pathologist to several hospitals, and, being thus assured of a livelihood, could devote his life to that science. Under such supervision each hospital could organize a pathological museum where the students of records and the compilers of reports might in many cases find preserved the pathological specimens illustrating the subjects of their investigations. The sharing of a pathologist's services between several hospitals would enhance rather than diminish their value, while the undivided and continuous character of those services would secure to each institution that received them, a constant skilled oversight of all the branches of pathological work, which would be of incalculable advantage to the visiting staff and through them to their successors in an indefinite series.



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